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The identification of any commercial product or trade name does not imply endorsement or recommendation by the National Institute of Standards and Technology.

NIST RMs/SRMs

NIST SRM 3250 *Serenoa repens* Fruit NIST SRM 3251 *Serenoa repens* Extract

Standard Reference Materials (SRMs) containing saw palmetto have been added to the series of dietary supplement SRMs being produced by the National Institute of Standards and Technology (NIST) and the National Institutes of Health's Office of Dietary Supplements (NIH/ODS). Dietary supplement products containing saw palmetto are sold to the public as a treatment for benign prostatic hyperplasia. Two saw palmetto SRMs have been produced: SRM 3250 *Serenoa repens* Fruit and SRM 3251 *Serenoa repens* Extract. These materials are intended for use as primary control materials when assigning values to in-house (secondary) reference materials and for validation of analytical methods. Values are assigned for fatty acids (both free and as triglycerides) and phytosterols. In addition, values for beta-carotene and delta- and gamma-tocopherol are assigned in SRM 3251. These materials are expected to be available by May 2008.

Technical Contact: Lane C. Sander
Email: lane.sander@nist.gov



NIST SRM 3258 Bitter Orange (Fruit)
NIST SRM 3259 Bitter Orange Extract
NIST SRM 3260 Bitter Orange-Containing Solid Oral Dosage Form

When ephedra-containing dietary supplements were ruled as adulterated by the Food and Drug Administration (FDA) in February of 2004, many manufacturers reformulated their weight-loss products to include bitter orange, which contains adrenergic amines. Bitter orange-containing dietary supplements have been added to the series of materials being produced by the National Institute of Standards and Technology (NIST) and the National Institutes of Health's Office of Dietary Supplements (NIH/ODS). This suite consists of: Standard Reference Materials (SRMs) 3258 Bitter Orange (Fruit), 3259 Bitter Orange Extract, and 3260 Bitter Orange-Containing Solid Oral Dosage Form. SRM 3261 Bitter Orange Dietary Supplement Suite contains two packets of each of the three materials. Values are assigned for the citrus alkaloids as well as potentially toxic elements (arsenic, cadmium, and lead) in these materials. In addition, a value is assigned for caffeine in SRM 3260. Materials in this suite of SRMs are intended for use as primary control materials when assigning values to in-house (secondary) control materials and for validation of analytical methods. These materials are expected to be available by May 2008.

Technical Contact: Lane C. Sander
Email: lane.sander@nist.gov



NIST RM 8011, Gold Nanoparticles, Nominal 10 nm Diameter
NIST RM 8012, Gold Nanoparticles, Nominal 30 nm Diameter
NIST RM 8013, Gold Nanoparticles, Nominal 60 nm Diameter

NIST Reference Materials Are 'Gold Standard' for Bio-Nanotech Research

The National Institute of Standards and Technology (NIST) has issued its first reference standards for nanoscale particles targeted for the biomedical research community—literally “gold standards” for labs studying the biological effects of nanoparticles. The three new materials, gold spheres nominally 10, 30 and 60 nanometers in diameter, were developed in cooperation with the National Cancer Institute’s Nanotechnology Characterization Laboratory (NCL).

Nanosized particles are the subject of a great deal of biological research, in part because of concerns that in addition to having unique physical properties due to their size, they also may have unique biological properties. On the negative side, nanoparticles may have special toxicity issues. On the positive side, they also are being studied as vehicles for targeted drug delivery that have the potential to revolutionize cancer treatments. Research in the field has suffered from a lack of reliable nanoscale measurement standards, both to ensure consistency of data from one lab to the next and to verify the performance of measurement instruments and analytical techniques.

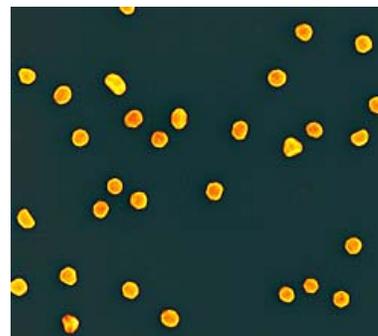
The new NIST reference materials are citrate-stabilized nanosized gold particles in a colloidal suspension in water. They have been extensively analyzed by NIST scientists to assess particle size and size distribution by multiple techniques for dry-deposited, aerosol and liquid-borne forms of the material. Dimensions were measured using six independent methods—including atomic force microscopy (AFM), transmission electron microscopy (TEM), scanning electron microscopy (SEM), differential mobility analysis (DMA), dynamic light scattering (DLS), and small-angle X-ray scattering (SAXS). At the nanoscale in particular, different measurement techniques can and will produce different types of values for the same particles.

In addition to average size and size distributions, the new materials have been chemically analyzed for the concentrations of gold, chloride ion, sodium and citrate, as well as pH, electrical conductivity, and zeta potential (a measure of the stability of the colloidal solution). They have been sterilized with gamma radiation and tested for sterility and endotoxins. Details of the measurement procedures and data are included in a report of investigation accompanying each sample.

NCL examines candidate nanotech cancer drugs developed by biotech firms and academic labs. NCL and the NCI’s Alliance for Nanotechnology in Cancer sponsored the NIST work.

Technical Contact: Vincent Hackley
Email: vincent.hackley@nist.gov

Media Contact: Michael Baum, michael.baum@nist.gov, (301) 975-2763



False color scanning electron micrograph (250,000 times magnification) showing the gold nanoparticles created by NIST and the National Cancer Institute’s Nanotechnology Characterization Laboratory (NCL) for use as reference standards in biomedical research laboratories. Credit: Andras Vladar, NIST



NIST RM 8573 and 8574 Carbon and Nitrogen Isotopes in L-glutamic acid

Nitrogen and carbon isotopic ratio variations are powerful tools for studying nutrient dynamics and relationships between trophic levels in terrestrial and aquatic ecosystems. The processes controlling nutrient flows between sources and sink are quite complex, especially when human interplay is possible, and an understanding and quantification of possible impacts is central to implementing best practice and informed management of environments ranging from wetlands to agricultural settings.

Currently, the majority of organic C and N isotope ratio measurements are made by on-line combustion isotope ratio mass spectrometry (IRMS). Suitable isotopic reference materials are critical for calibrating measurements and laboratory working standards against the $\delta^{13}\text{C}$ scale relative to VPDB ($\delta^{13}\text{C}_{\text{VPDB}}$) and the $\delta^{15}\text{N}$ scale relative to N_2 in AIR ($\delta^{15}\text{N}_{\text{AIR}}$). They are also used to correct measurements for instrumental biases such as drift, mass dependent fractionation and delta scale contractions. Currently available reference materials suitable for on-line combustion however have C/N ratios and isotopic compositions that are not optimum for measurements of many biological materials.

The United States Geological Survey (USGS) (Reston, VA) undertook to create a suitable organic isotopic reference material and produced RM 8573 (USGS40) and RM 8574 (USGS41) from analytical reagent L-glutamic acid. L-glutamic acid was chosen because it has a molar C/N ratio of 5 (typical of many biological materials), is soluble in water, and is stable as a dry powder at room temperature. RM 8573 was derived from commercially available L-glutamic acid and contains light carbon ($\delta^{13}\text{C}_{\text{VPDB}} = -26.93 \text{ ‰}$) and light nitrogen ($\delta^{15}\text{N}_{\text{AIR}} = -4.52 \text{ ‰}$). RM 8574 was prepared by dissolving, mixing, and then precipitating a precise blend of isotopically normal and ^{13}C and ^{15}N enriched L-glutamic acids. RM 8574 is approximately 5% isotopically heavier in carbon ($\delta^{13}\text{C}_{\text{VPDB}} = +37.63 \text{ ‰}$) and nitrogen ($\delta^{15}\text{N}_{\text{AIR}} = +47.53 \text{ ‰}$) than RM 8573. The range of carbon and nitrogen isotopic values bracketed by these two RMs captures the range and variations seen in natural biological systems.

The isotopic value assignments for these materials were done by combining data from off-line dual-inlet IRMS and on-line combustion continuous flow IRMS measurements done at both MPI (Jena, Germany) and USGS (Reston, VA).

These two new RMs will provide researchers in biological and ecology fields with a precise and timely tool for eliminating instrumental biases; thereby improving the quality and intercomparability of their carbon and nitrogen isotopic measurements.

Technical Contact: Robert Vocke
Email: robert.vocke@nist.vocke

Renewals

- SRM 351a** Sodium Carbonate (Acidimetric Standard)
SRM 1662a Sulfur Dioxide in Nitrogen Lot #93-H-XX
SRM 1678c Carbon Monoxide in Nitrogen Lot #4-K-XX
SRM 2096 High-Energy Impact Specimen Lot #HH 110
SRM 2451 Fine Carbon (Activated) From Cyanide Ore Leaching
SRM 2641a Carbon Monoxide in Nitrogen Lot #52-D-XX
SRM 3102a Antimony Standard Solution Lot #061229
SRM 3107 Boron Standard Solution Lot #070514
SRM 3144 Rhodium Standard Solution Lot #070619
SRM 3161a Tin Standard Solution Lot #070330

Revisions

Certificate Revisions—Are You Using These Materials?

This is a list of our most recent certificate revisions. Users of NIST SRMs should ensure that they have the most recent certificates. NIST updates certificates for a variety of reasons, such as to extend the expiration date or to include additional information gained from stability testing. If you do not have the most recent certificate for your material, you can print or view a copy from the website at:

<http://www.nist.gov/srm> or contact SRM at:

Phone: 301-975-6776 / 301-975-2200 **Fax:** 301-926-4751 **Email:** srminfo@nist.gov

SRM 39j Benzoic Acid

Editorial Changes

SRM 186g pH Standards

New Expiration Date:
23 May 2013

SRM 869a Column Selectivity Test Mixture for Liquid Chromatography

Editorial Changes;
New Expiration Date:
30 September 2012

SRM 1473b Low Density Polyethylene Resin

Editorial Changes

SRM 1474a Polyethylene Resin

Editorial Changes

SRM 1476a Branched Polyethylene Resin

Editorial Changes

SRM 1649a Urban Dust

Added Certified Values
and Reference Values;
New Expiration Date:
30 April 2012

SRM 1665b Propane in Air Lot #85-I-xx

New Expiration Date:
01 June 2015

SRM 1666b Propane in Air Lot # 84-I-XX

New Expiration Date:
01 September 2015

SRM 1667b Propane in Air Lot #83-I-XX

New Expiration Date:
12 July 2015

Revisions (continued)

**SRM 1669b Propane in Air
Lot #81-H-XX**

New Expiration Date:
12 July 2015

**SRM 1872 Lead-
Germanate Glasses for
Microanalysis**

Editorial and Technical
Changes

**SRM 1932 Fluorescein
Solution**

Editorial Changes;
New Expiration Date:
27 July 2012

**SRM 1945 Organics in
Whale Blubber**

Added Certified Values
and Reference Values;
New Expiration Date:
31 July 2016

**SRM 2193a Calcium
Carbonate pH
Standard**

New Expiration Date:
19 June 2015

**SRM 2383 Baby Food
Composite**

Editorial Changes
New Expiration Date:
01 November 2009

**SRM 2392-I Mitochondrial
DNA Sequencing**

Editorial Changes
New Expiration Date:
31 March 2013

**SRM 2065 Ultraviolet-
Visible-Near-Infrared
Transmission Wavelength/
Vacuum Wavenumber**

Editorial Changes;
New Expiration Date:
31 December 2008

**SRM 2635a Carbon
Monoxide in Nitrogen**

Lot #58-D-XX
New Expiration Date:
18 June 2015

**SRM 2644a Propane in
Nitrogen Lot #101-C-XX**

New Expiration Date:
01 June 2015

**SRM 2646a Propane in
Nitrogen Lot #103-C-XX**

New Expiration Date:
12 July 2015

SRM 2886 Polyethylene

Editorial Changes

SRM 2887 Polyethylene

Editorial Changes

**SRM 3106 Bismuth
Standard Solution**

Lot #991212
Editorial Changes;
New Expiration Date:
11 May 2012

**SRM 3110 Cerium
Standard Solution**

Lot #890602
Editorial Changes;
New Expiration Date:
01 August 2012

**SRM 3116a Erbium
Standard Solution**

Lot #000831
Editorial Changes;
New Expiration Date:
24 October 2012

**SRM 3117a Europium
Standard Solution**

Lot #991307
Editorial Changes;
New Expiration Date:
13 September 2012

**SRM 3124a Indium
Standard Solution**

Lot #991219
Editorial Changes;
New Expiration Date:
11 May 2012

**SRM 3129a Lithium
Standard Solution**

Lot #000505
Editorial Changes
New Expiration Date:
11 August 2012

**SRM 3135a Neodymium
Standard Solution**

Lot #992803
Editorial Changes;
New Expiration Date:
02 March 2012

**SRM 3142a Praseodymium
Standard Solution**

Lot #990501
Editorial Changes;
New Expiration Date:
04 April 2012

**SRM 3148a Scandium
Standard Solution**

Lot #792111
Editorial Changes;
New Expiration Date:
11 May 2012

**SRM 3151 Silver
Standard Solution**

Lot #992212
Editorial Changes;
New Expiration Date:
11 May 2012

**SRM 3153a Strontium
Standard Solution**

Lot #990906
Editorial Changes;
New Expiration Date:
01 March 2012

Revisions (continued)

**SRM 3158 Thallium
Standard Solution
Lot #993012**
Editorial Changes;
New Expiration Date:
11 May 2012

**RM 8541 USGS24
Graphite**
Technical Changes;
New Expiration Date:
31 December 2015

**RM 8542 IAEA-CH-6
Sucrose**
Technical Changes;
New Expiration Date:
31 December 2015

**RM 8544 NBS19
Limestone**
Editorial Changes;
New Expiration Date:
31 December 2015

**RM 8562 CO₂–Heavy,
Paleomarine Origin**
Editorial Changes;
New Expiration Date:
31 December 2017

**RM 8563 CO₂–Light,
Petrochemical Origin**
Editorial Changes;
New Expiration Date:
31 December 2017

**RM 8564 CO₂–Biogenic,
Modern Biomass Origin**
Editorial Changes;
New Expiration Date:
31 December 2017

ORDER NIST SRMS ONLINE

You can now order NIST SRMs through our new online ordering system, which is constantly being updated. **PLEASE NOTE:** Purchase orders and credit cards may be used when ordering an SRM online. This system is efficient, user-friendly, and secure. Our improved search picks up keywords on the detail page along with the words in the title of each SRM.

In addition, we are in the midst of a project to add numerous certificate references for each SRM online. Please also note we are adding many historical archive certificates online for your convenience.

<https://srmors.nist.gov>

Please Register Your Certificate Online!

Users of NIST SRMs should ensure that they have the most recent certificates.

<http://www.nist.gov/srd/srmregform.htm>

PITTCON 2008 - NEW ORLEANS, LA MARCH 2-7 2008**NIST Calibration Gas Meeting - Tuesday, March 4, 2008
Marriott New Orleans Bonaparte Conference Room 4th Floor 2:00 – 4:00 pm**

Some topics for Discussion:

- Status and Future of SRM Program/New re-certification paradigm
- Status and Future of NTRM Program/Proposed re-certification paradigm to track new SRM re-certification program
- EPA Protocol Gas Verification Program
- Recent activities in the NIST Gas Metrology Group
- Uncertainties, International Activities

There will be time for questions and answers; and also for anyone wishing to make an appropriated short presentation.

RSVP: William Dorko at william.dorko@nist.gov or Mike Kellev at mekellev@nist.gov

NIST Staff Presentations

DATE	NIST STAFF	EVENT TITLE	TIME	LOCATION
3/2/2008	Samuel P. Forry, Laurie E. Locascio	On Device CO2 Control to Facilitate Microfluidic Cell Culture	1:40 PM	Rm 261
3/3/2008	Catherine Rimmer, Katrice A. Lippa, Lane C. Sander, Meghan E. Kern, Lee J. Richter, Lucile C. Teague, Rebecca A. Zangmeister	Understanding Chromatographic Surfaces: An Interdisciplinary Approach	11:15 AM	Rm 252
3/3/2008	Paul C. DeRose	Extending the Spectral range of Fluorescence Instrument Qualification into the Ultraviolet (UV) and Near Infrared (NIR)	8:30 AM	Rm 264
3/3/2008	Shawn Dressman and Karen Phinney	Management and Certification of Reference Standards	8:30 AM	Rm 227
3/3/2008	Kenneth W. Pratt	Challenges for pH Reference Materials	4:20PM	Rm 235
3/4/2008	Mary Bedner, Michele M. Schantz, Lane C. Sander, Katherine S. Sharpless	Determination of Fatty Acids and Phytosterols in NIST Standard Reference Materials Comprised of Saw Palmetto	Morning Poster Session	Hall C Aisles3000-3400
3/4/2008	Thomas W. Vetter	Titrimetric Determination of Water in a Sucrose Reference Material	Afternoon Poster Session	Hall C Aisles3000-3400
3/4/2008	Stephen W. Wise, Presiding	Workshop: Standard Reference Materials (SRMs) for Clinical, Environmental, Nutritional and Dietary Supplement Analysis	1:30PM	Rm 235

3/4/2008	Karen W. Phinney, Mary Bedner, Lacey C. Brent, Jeanice Brown Thomas, Johanna Camara, Nathan Dodder, Bryant C. Nelson, Catherine A. Rimmer, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise	SRMs for Nutritional Status Assessments: What Constitutes Vitamin Deficiency?	1:35 PM	Rm 235
3/4/2008	Michele Schantz	Human Serum, Milk, and Urine SRMs Characterized for Trace Organic Contaminants	2:05 PM	Rm 235
3/4/2008	John Sieber	Supporting US Industries through Standards Activities and Reference Materials Development in Response to Declarable Substances Regulations	2:35PM	Rm 235
3/4/2008	Clay Davis, Steven J. Christopher, Rolf Zeisler, Lee Yu, Rick Paul, John Sieber, Jacqueline L. Mann, Karen Murphy, Stephen E. Long	SRMs for Elemental Speciation Measurements	3:50 PM	Rm 235
3/4/2008	David Bunk, Karen W. Phinney	Improving Measurement Quality to Proteomics and Metabolomics with Reference Materials	4:20PM	Rm 235
3/4/2008	Gary W. Kramer, presiding	Tools for Applying the Analytical Information markup Language (AniML)	1:30PM	Rm 236
3/4/2008	Gary W. Kramer	Validating AniML Data Files	2:25PM	Rm 236
3/5/2008	Catherine A. Rimmer, David L. Duewer, Katherine E. Sharpless, Laura J. Wood	Dietary Supplement Laboratory Proficiency Testing-NIST Pilot Program	10:05AM	Rm 242
3/5/2008	Bruce MacDonald, William Robert Kelly, Stefan Leigh	A Method for the Preparation of NIST Traceable Fossil Fuel Standards with Concentrations Intermediate to SRM Values	10:05AM	Rm 235
3/5/2008	Tim Brewer, R. Michael Verkouteren, Greg Gillen	Investigation of Various Dopant Materials for Increased Specificity of Explosives in Ion Mobility Spectrometry (IMS)	Morning Poster Session	Hall C Aisles 3000-3400
3/5/2008	William A. MacCrehan	Development of NIST Standard Reference Materials for Trace Explosives Detectors	1:30PM	Rm 349
3/5/2008 3/6/2008	Thomas Vetter, William Guthrie	Hands-on Workshop on Evaluating Uncertainties for Chemical Analysis 2-day course	8:30AM-5:00PM	Rm 209 Course #106

SRM 2008 MARKETING CATALOG/CD

If you would like a copy of our new January 2008 SRM Marketing Catalog, Price List or a CD, please call, fax, or email us at:

Ph: 301-975-6776/2200

Fax: 301-948-3730

Email: srminfo@nist.gov

These CDs are helpful to SRM users who do not have access to our online catalog on the internet.



NIST SRM 2008 Exhibit Schedule

**Pittsburgh Conference-
PITTCON**

March 2-7, 2008
Booth # 4512, 4513
Morial Convention Center
New Orleans, LA

**National Organization for
the Professional
Advancement of Black
Chemists and Chemical
Engineers - NOBCChE**

March 16-22, 2008
Marriott Downtown
Philadelphia, PA

**Materials Research Society
Spring Meeting - MRS**

March 25-27, 2008
San Francisco Marriott
San Francisco, CA

Analytica

April 1-4, 2008
Booth #A.2.230/1
Munich Trade Fair
Germany

**American Chemical
Society – ACS**

April 6-10, 2008
Booth # 1410-1412
Morial Convention Center
New Orleans, LA

**Conference on Precision
and Electromagnetic
Measurements - CPEM**

June 8-13, 2008
Omni Interlocken Resort
Broomfield, CO

IFT-Food Expo

June 29 – July 1, 2008
Morial Convention Center
New Orleans, LA

AACC Clinical Lab Expo

July 29-31, 2008
Washington DC
Convention Center
Washington, DC

NCSLI Symposium

August 3-7, 2008
Walt Disney World
Swan and Dolphin
Orlando, FL

American Chemical Society

ACS - August 17-21, 2008
Pennsylvania Convention
Center
Philadelphia, PA

**Association of
Official Chemists**

AOAC
*September 21-25,
2008*
Hyatt Regency
Dallas
Dallas, TX

MS&T Show

October 5-9, 2008
David L. Lawrence
Convention Center
Pittsburgh, PA

**Materials Research
Society Fall Meeting-MRS**

December 2-4, 2008
Boston Marriott
Boston,

